

Presentation on the Broadband Study Project to the High-Speed Internet Strategy Work Group

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Broadband Study Project

- Designed to collect and interpret reliable geographic, demographic, cultural and telecommunications technology information to identify broadband disparities and factors preventing the widespread availability and use of broadband technologies.



Study Methodology

- Focused on five (5) Washington Counties:
 - Columbia, Ferry, Grays Harbor, Lewis and Stevens
- Random sample, statistically valid telephone-based survey of the residential community within and across the five (5) counties.
 - 300 completed interviews per county for a total of 1,500 across the five counties



Study Methodology

- Random sample, telephone survey of business and non-profit organizations in the five counties
 - Sectorized, 100 each within the 3 largest counties, 50 each within the two smallest counties for a total of 400
 - Augmented by an on-line survey disseminated through local Chambers of Commerce




Study Methodology

- On-line and written surveys of local governments, tribal governments, library districts and educational institutions.
- In-depth interviews and focused discussions with representatives of key communities of interest within the five counties
 - In-depth interviews with key staff and elected officials representing statewide interests as well



Study Methodology

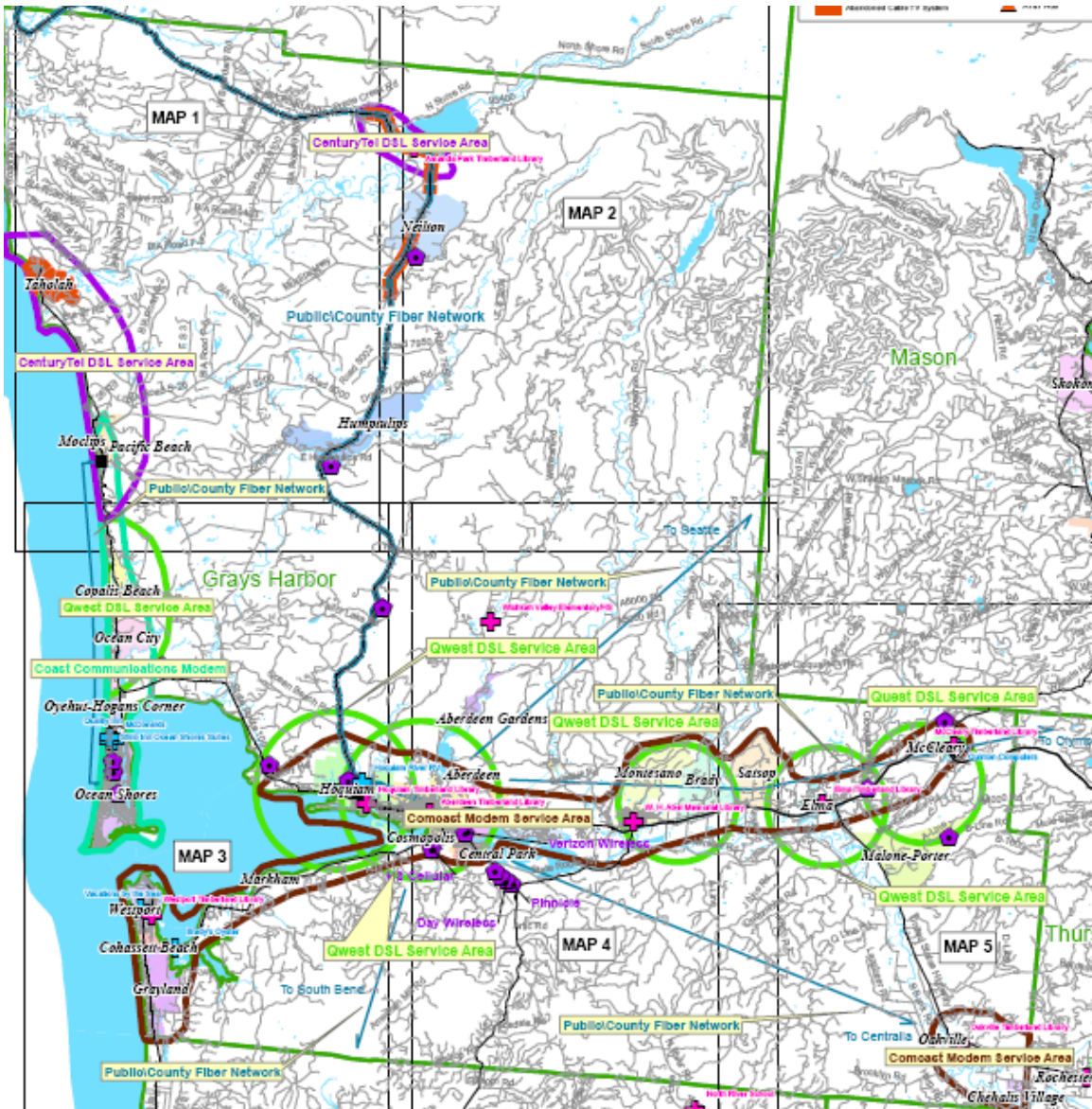
- Written broadband provider survey
- Supplemented by review of marketing materials
- Discussions with service provider representatives
- 2,700 mile ride-out of the physical infrastructure within the five counties



Baseline Issue - Broadband Availability

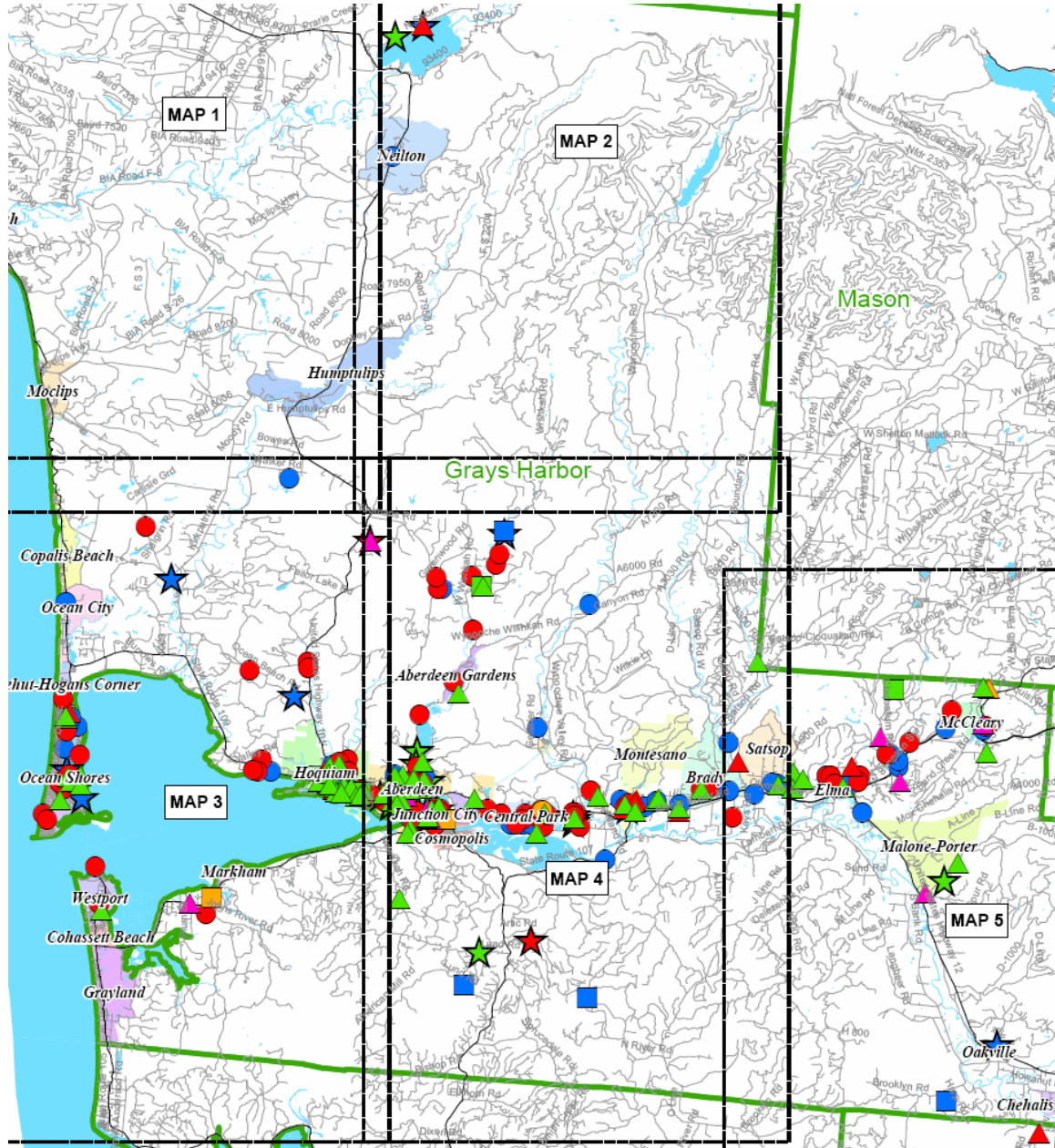
- Factors that inhibit broadband availability
 - ☐ Low population density
 - ☐ Distance from a major transportation corridor
 - ☐ Terrain
 - ☐ Permitting
 - ☐ Planning
 - ☐ Lengthy ROI
 - ☐ Capabilities/limitations of existing technology

Grays Harbor Broadband Provision Areas



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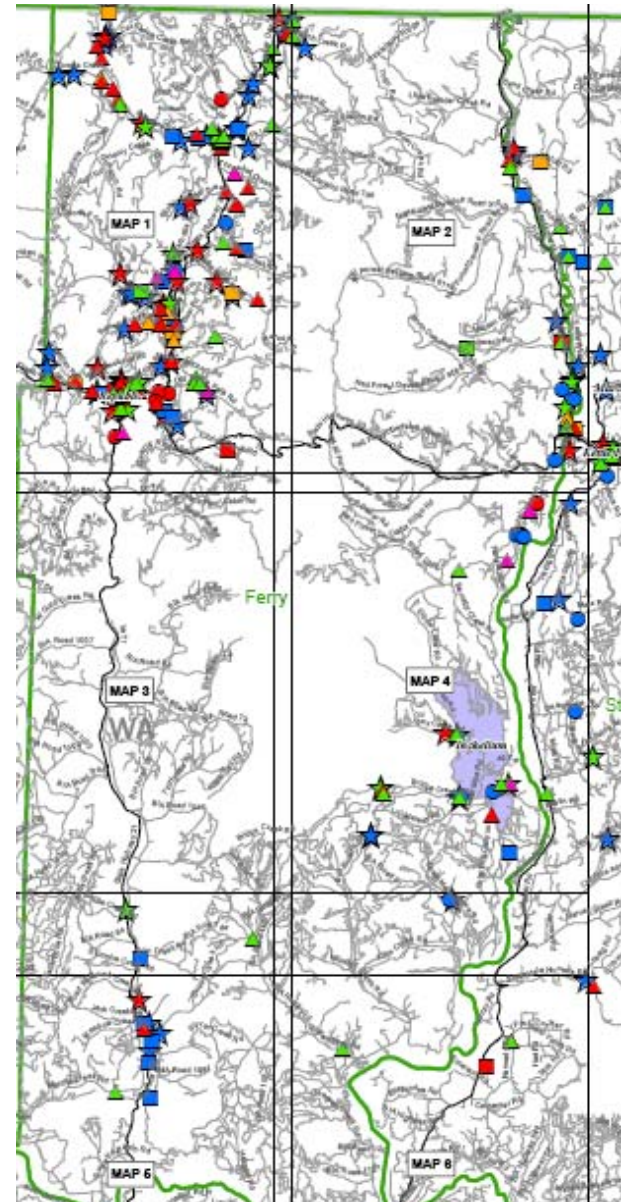
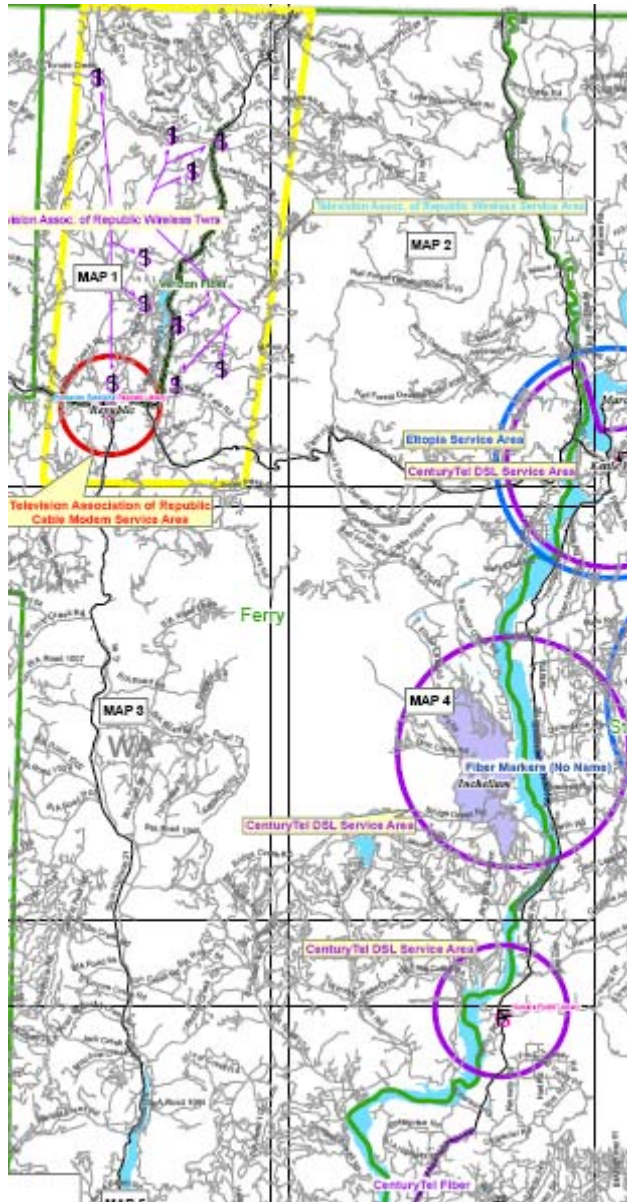
Grays Harbor Residential Survey Respondents



Ferry County

Broadband
Service
Areas

Residential
Survey





Baseline Issue - Broadband Adoption and Use

- Factors that Inhibit Broadband Adoption and Use
 - Service not available or not easily available
 - Relatively high cost
 - Lack of multiple, competing options
 - Lack of training, education, computer/Internet literacy
 - Lack of computer/access device
 - Do not see the benefits of:
 - Computer and/or
 - Internet access and/or
 - Applications enabled by high-speed access



Residential Broadband Adoption

Type of Internet Access Connection	Columbia	Ferry	Grays Harbor	Lewis	Stevens	Average Across the Five Counties
Dial-Up	17%	35%	11%	25%	34%	24%
DSL (Digital Subscriber Line)	31%	7%	17%	27%	19%	20%
Cable Modem	7%	8%	33%	9%	5%	12%
Satellite Internet Service	7%	12%	3%	3%	10%	7%
Others	9%	8%	8%	9%	9%	9%
No Internet Access	29%	30%	28%	27%	23%	28%



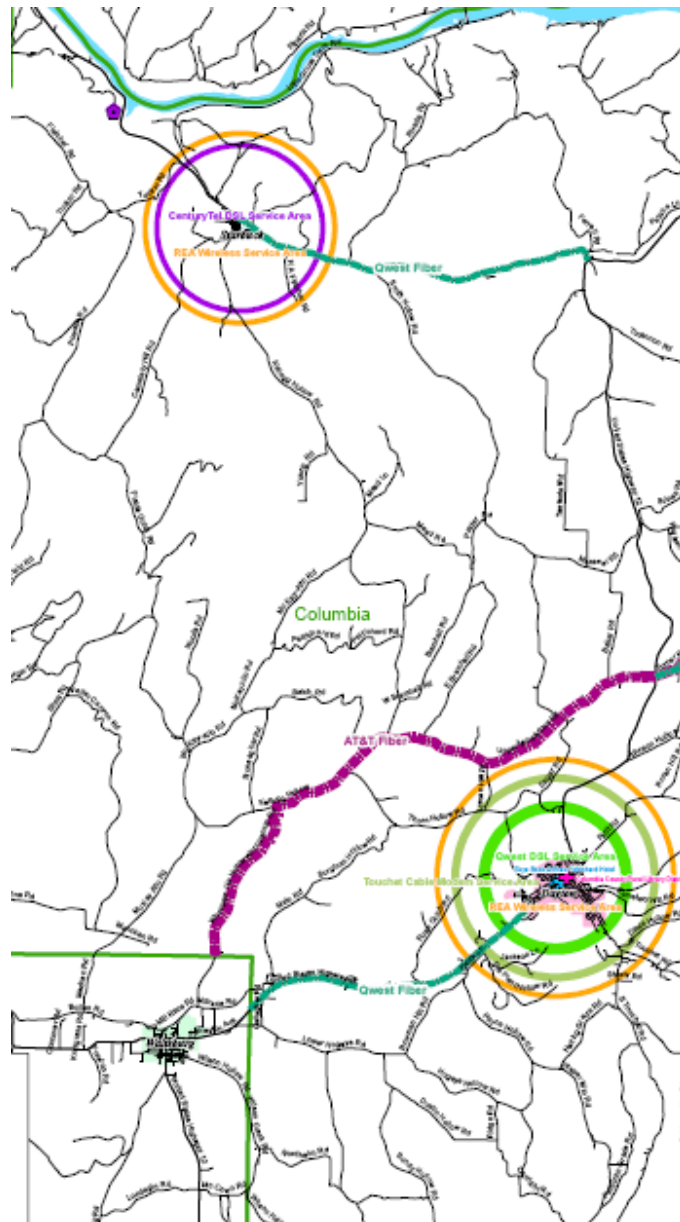
Residential Computer Access

- 80% of residents in the five counties have a computer
 - 59% have one computer
 - 27% have two computers
 - 40% have a laptop computer
- 47% of those without a computer don't want one.
- 17% of those without a computer said it is too expensive.



Residential Internet Access Adoption

- 28% of residents in the five counties do not have Internet access at home.
- Among those without Internet access, 33% don't want it and 18% said it is too expensive.





Internet Activity – Broadband versus Dial-up

Internet Activity	Nationwide	Broadband Subscribers in the Five Counties	Dial-Up Subscribers in the Five Counties
Send or read e-mail.	92%	93%	90%
Take a class online, educational purposes.	12%	39%	32%
Watch a video.	56%	34%	11%
Sell something online.	15%	21%	19%
Bank online.	53%	63%	47%
Buy a product.	66%	77%	67%

Baseline Issue – Key Adoption Profiles



■ **Profile 1: I don't own a computer and don't have internet access**

- 1 in 5 residents in the five counties
- Key attributes:
 - Older resident
 - Retired
 - Less likely to have attended college
 - Less likely to have children in the home
 - Cost too much (\$300 benchmark on computer, \$20 benchmark on internet)
 - More likely to not need or want them
 - Household incomes less than \$25,000
 - More likely to be a minority

Baseline Issue – Key Adoption Profiles

■ **Profile 2 I have dial-up access and that's all I will pursue**

□ Key attributes:

- Trends older, but not as old as the those without computers.
- Retired or disabled (fixed incomes)
- More likely to have attended college, but not as likely to have graduated
- More likely to earn more than those without computers, but still have a significant percentage with household incomes less than \$25,000
- Less likely to have children in the home
- Likely to report dissatisfaction with the cost of Internet and the speed of their Internet service



Baseline Issue – Key Adoption Profiles



■ Profile 3: I don't have broadband, I can afford it—but don't want it

□ Key attributes:

- More likely to be older
- More likely to be retired
- Less likely to have children in the home
- More likely to have graduated from college
- Less likely to be a minority
- Earn more than \$35,000
- Have a computer; some do not have internet access, but some have dial-up
- Less likely to support the notion that all Washington residents should have high-speed internet access

Baseline Issue – Key Adoption Profiles

■ Profile 4: I have dial-up access and I want broadband

□ Key attributes:

- Younger than those satisfied with dial-up or that do not own a computer
- More likely to report children in the home
- More likely to be employed in a job where they use the Internet
- More likely to report using the internet in places outside of the home
- More likely to have graduated from college
- More likely to earn more than \$35,000
- More likely to report that broadband is not available and that's why they don't subscribe



Baseline Issue – Key Adoption Profiles



■ **Profile 5: I have broadband, I'm satisfied for the moment, but I want a robust broadband culture**

□ Key attributes:

- Younger than dial-up and no-computer users
- College graduates
- Report higher incomes, often more than \$50,000 annually
- Have children in the home
- Employed in jobs where they use the internet
- More likely to desire having access to broadband in a wireless environment
- Some complaint with cost, but satisfied with speed, reliability and ease of use of the Internet



Baseline Issue - Ways to Increase Broadband Adoption

- Increasing the number and type of broadband availability options to ensure easy, affordable, reliable access,
- Augmenting existing computer/technology literacy efforts,
- Determining ways to increase affordable access to computers (including potentially more public access computers), and
- Looking at whether the paradigm could be changed for those that truly don't want or don't need broadband.



Business Broadband Adoption

Top 4 Across the 5 Counties

Type of Internet Access Connection	Grays Harbor	Lewis	Stevens	Columbia	Ferry	Average Across the Five Counties
Dial-Up	6%	19%	25%	14%	16%	16%
DSL (Digital Subscriber Line)	47%	39%	34%	26%	4%	34%
Cable Modem	20%	6%	1%	8%	42%	13%
Satellite Internet Service	0%	5%	16%	4%	6%	7%
Others*	14%	11%	13%	20%	18%	14%
No Internet Access	13%	20%	11%	28%	14%	16%

* Others include Fixed Wireless, T-1, Frame Relay, Fiber optics, I don't know, etc.



Business Internet Access

- In terms of the availability of broadband providers:
 - 32% of businesses said they have only one provider option
 - 28% have two broadband options
 - 17% have a handful of options
 - 14% have no suitable broadband option
- 67% of businesses said it would be beneficial to their business if the broadband environment in their area was enhanced.



Business Internet Access Adoption

- 16% of businesses do not have Internet access and cite the following reasons:
 - Do not need it – 58%
 - Too expensive– 15%



Baseline Issue - Economic Impact

- The lack of a truly reliable competitive broadband environment creates the following negative economic impacts:
 - Movement of businesses away from low or no broadband areas to areas with a better broadband environment.
 - Higher operational costs.
 - Difficulty in recruitment.
 - Slower, more inefficient and inconsistent operations.
 - Less provision of services to, and access of services by, citizens thus reducing related quality of life components.



Development and Deployment Models

- Almost all statewide initiatives aim to develop infrastructure in rural areas to allow for broadband deployment.
- Three general approaches:
 - Encourage the private sector to build
 - Create a state broadband authority
 - Create a public/private partnership



Steps to Promote Broadband Expansion

- Gap - Lack of Broadband
 - Action - Initially work to determine the most effective methods to enhance and expand backbone infrastructure.
- Gap - Address Governmental Policies in Place Today that Inhibit Deployment
 - Action - Work with the State, county, local and tribal governments to address existing inhibitors to local deployment of broadband.



Steps to Promote Broadband Expansion

■ Gap - Lack of Backbone Infrastructure

- Action - Work with State and local agencies to fully identify all currently available infrastructures.
- Action - Work with State and local agencies to determine planned deployment of infrastructure in the near and long term.
- Action – Work with State and local agencies to determine how new deployment can be leveraged to add additional capacity for broadband deployment long term, including the closest points of connection to existing and potential new last mile infrastructure.
- Action - Meet with large and small providers to determine desire to participate in, for example, a "Backbone Deployment Cooperative".



Steps to Promote Broadband Expansion

- Gap - Lack of Backbone Infrastructure, cont'd
 - Action - Determine how this Cooperative might help the State reduce its costs to deploy fiber optic infrastructure throughout the counties and therefore accelerate deployment.
- Gap – Creation of Redundant Backbone
 - Action - Determine what level of redundancy is needed to offer reliable service and to promote adoption of the backbone network by small and large providers.
 - Action - Determine how cooperative efforts will minimize deployment costs of a backbone and therefore how redundancy can be built into the network at the lowest possible level.
- Gap – Creation of Additional Last Mile Infrastructure
 - Action - Determine the best methods of delivering last mile services based on the closest point of connection to an enhanced, expanded backbone.



Encourage the Private Sector to Build

- Expand Statewide Backbone
 - Encourage further deployment
- Provide “ROI Gap Funding”
 - Measurable criteria for evaluating successful use of funding
 - Timeframe for development of services to an entire target area, including phased implementation



Encourage the Private Sector to Build

- Measurable criteria for evaluating successful use of funding, cont'd
 - Creative means to bring broadband services to the area as an interim measure while more long term plans are developed
 - Engagement in adoption encouragement and support activity
 - Nature of the services provided, including range and scalability

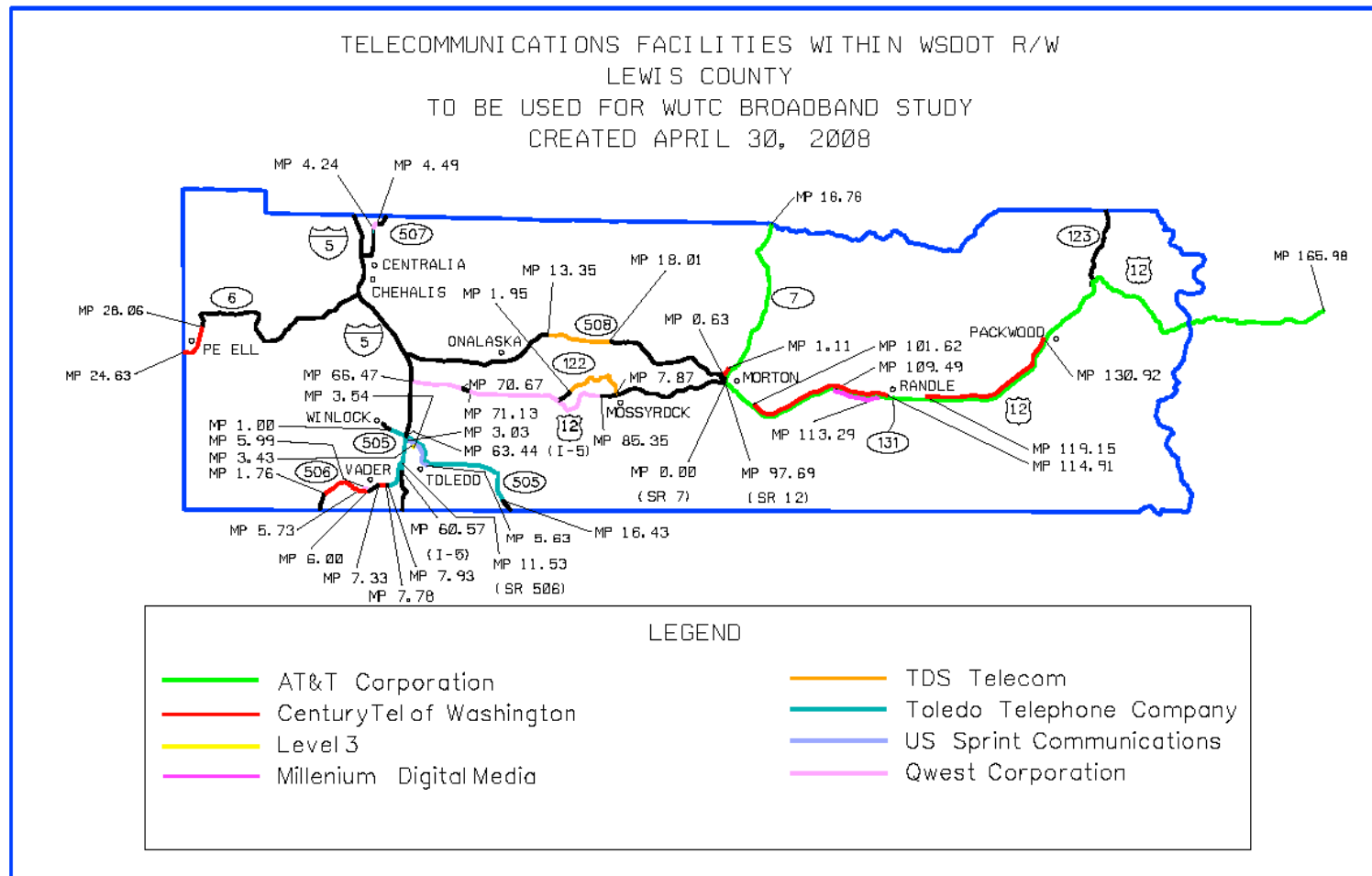


Encourage the Private Sector to Build

- Measurable criteria for evaluating successful use of funding, cont'd
 - Ability of the system to enable competitive offerings
 - Expansion requirements over time to keep pace with technology
 - Self-sustainability at a given point that would serve as an end-point for support funding



Information Received from DOT – Lewis County





Baseline Issue - Mapping

Questions/Issues to Address

- What base map will be used?
- What media are used for the entity's existing data (hardcopy, digital, etc.)?
- If digital, what software was used (GIS, CAD, etc.)?
- What coordinate system was used, if any?
- How current is the information?
- How accurate is the information?



Incomplete Mapping Data can Lead to Significant Difficulties in:

- Setting Quality Assurance and Quality Control Procedures
- Managing Error Propagation
- Developing Data Transfer Standards
- Accurately Determining Conversion Costs
- Proper Decision-Making



Create a State Broadband Authority

- Create a “one-stop shop”
 - Serve as a clearinghouse
 - Identify opportunities to leverage public and private resources
- Carefully study restrictions to not undermine or impair current positive attributes of the broadband marketplace



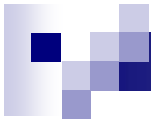
Create a Public Private Partnership

- Other states have pursued successfully
- Proper pre-planning, forecasting, benchmarks, flexible, dynamic organizational structure and solid success measurement criteria are a must
- Avoid problems that have plagued other partnerships (flawed business plans, technical problems, too broad or too narrow focus, lack of political or constituent support and other problems)



Overall Conclusion

- Broadband availability and adoption disparities exist that are having a negative impact
- There are ways to alter the broadband environment
 - The Study indicates attainable, although very challenging, paths to resolve the problems
- There is momentum that if channeled properly could have a positive impact
- Positive steps will enhance Washington's national and global position



■ Q & A Discussion



Thank you!